Testimony of Lawrence G. Smith, MD
Chief Medical Officer,
North Shore-LIJ Health System, Great Neck, NY
Dean, Hofstra University School of Medicine
In Partnership with North Shore-LIJ
Testifying on Behalf of Premier Healthcare Alliance

Before the U.S. House Ways and Means Committee

"Health Reform in the 21st Century: Reforming the Health Care Delivery System"

April 1, 2009

Chairman Rangel, Ranking Member Camp and members of the Committee, my name is Lawrence Smith, MD, Chief Medical Officer of North Shore-LIJ Health System in Great Neck, NY.

Today, I'm here testifying on behalf of North Shore-LIJ and also as a member of the Premier healthcare alliance, a hospital quality and cost improvement alliance of 2100 non-profit hospitals and health systems. The Premier alliance operates the nation's most comprehensive repository of hospital clinical, outcomes and financial information as well as one of the nation's leading group purchasing organizations. The hospitals united in the Premier healthcare alliance share the goal of providing safe, affordable, quality care through the sharing of knowledge, experience and tools. A world leader in helping deliver measurable improvements in care, Premier works with the Centers for Medicare & Medicaid Services and the United Kingdom's National Health Service North West to improve hospital performance.

Considering that our focus is on improving the healthcare delivery system, I appreciate the opportunity to speak today about North Shore-LIJ's journey to improve the quality and affordability of care we deliver to the patients we serve. My testimony will describe how our participation in the Centers for Medicare & Medicaid Services (CMS)/Premier Hospital Quality Incentive Demonstration (HQID) project is a catalyst for quality improvement at our facility, and how we worked to achieve top performer status in the project. I will also present some key issues for the Committee to consider as it moves forward with its agenda in the context of healthcare reform.

The North Shore-LIJ Health System is the nation's third-largest, nonprofit, secular healthcare system, with 14 hospitals and nearly 5,000 beds in Long Island, Queens and Staten Island, NY – a service area encompassing more than five million people. North Shore-LIJ has more than 1,200 full-time faculty physicians and 6,800 community physicians on its medical staffs, employs more than 11,000 nurses and has a total workforce of about 38,000. The health system includes three

tertiary-care facilities, two specialty care facilities, a major medical research center and nine community hospitals.

At North Shore-LIJ, we do not distinguish our hospitals based on payer mix or profitability as it relates to quality of care. Our hospitals span a diverse spectrum of characteristics. Some are large major academic medical centers and teaching hospitals where the majority of medical care is provided by faculty and residents in training. Others are small community, non-teaching hospitals where medical care is provided by community based physicians. Our hospitals provide care to the entire spectrum of socio-economic boundaries. Many of our hospitals are located in socio-economically challenged communities and provide care primarily to diverse social and cultural communities.

Overview of the CMS/Premier HQID Project

North Shore-LIJ has a long-standing commitment to becoming a top-performing organization by creating a culture of quality. That commitment made us the perfect partner in 2003, when Premier announced a new three-year demonstration project with CMS to encourage improvements to hospital quality. The CMS/Premier HQID project, which has since been extended for an additional three years through 2009, is the first-ever national test of quality incentives across a broad array of acute care conditions in Medicare patients.

The first three years of the project included more than 250 hospitals located in 35 states, and provided incentives to hospitals that successfully used evidence-based, widely accepted clinical treatments and measures to care for patients with these conditions: heart attack, heart failure, coronary artery bypass graft (CABG), pneumonia and hip/knee replacement. Rewards were in the form of public recognition and annual quality incentive payments from CMS to top performers.

Those hospitals that performed in the top 10 percent of a clinical area—heart bypass, for instance—received an incentive payment equivalent to two percent of their applicable Medicare base rates; those in the top 20 percent received a one percent payment. In the third year only, those hospitals that were low performers based on year one baseline results were financially penalized.

The HQID project was extended for an additional three years to test additional measures, including more than 30 new outcome measures, as well as new incentive models including the recognition of improvement, as suggested by MedPAC. In the extension, incentives have been expanded to include hospitals that achieve the greatest quality improvement, those that attain a defined level of quality, along with those that are in the top 20 percent of quality in each condition. In addition, the extension will allow for penalties for low performers, identified using targets set two years prior, on an annual basis. More than 240 hospitals, across 35 states, elected to continue in the project extension.

HQID Hospitals Have Achieved Rapid and Sustained Improvements and Are Closing the Performance Gaps in All Measurement Areas

The quality of care provided by HQID participating hospitals has significantly improved in all five clinical focus areas between the inception of the program in October 2003 and June 2008, the timeframe for which the most current preliminary data is available.

The greatest improvement was in heart failure, where the overall median Composite Quality Score rate increased 31.4 percent, from 64 percent to 95.4 percent.

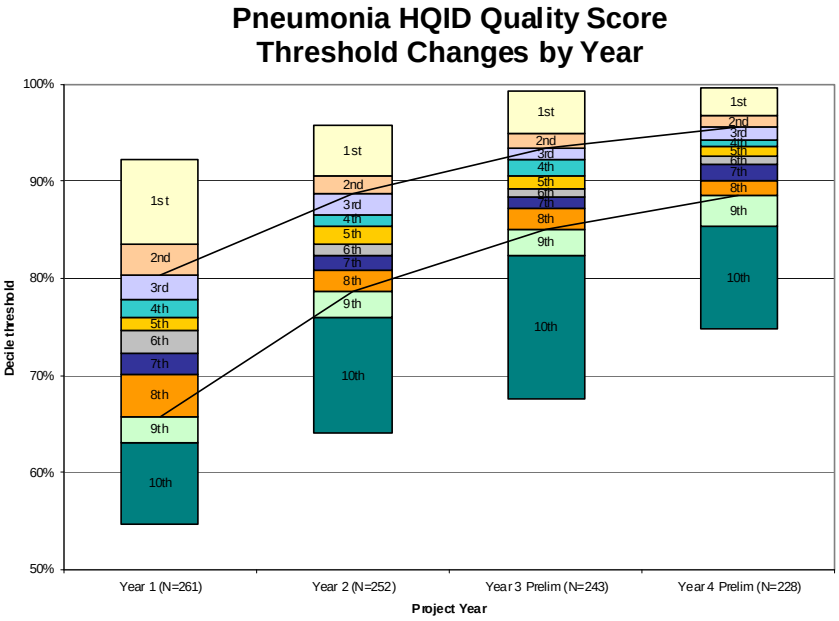
This was followed by pneumonia with an increase of 25.9 percent, from 70 percent to 95.9 percent; heart bypass with an increase of 14.1 percent, from 85.1 percent to 99.2 percent; and hip and knee replacement with an increase of 13 percent, from 85.1 percent to 98.1 percent.

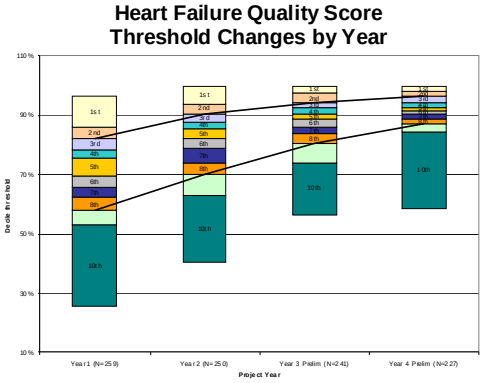
Significant increases were also identified in heart attack (8.9 percent, from 89.6 percent to 98.5 percent), which had the highest performance at the onset of the project. Improvements are also apparent in the recently added surgical care population, where the median performance improved three percent from 92.3 percent to 95.3 percent in just three quarters.

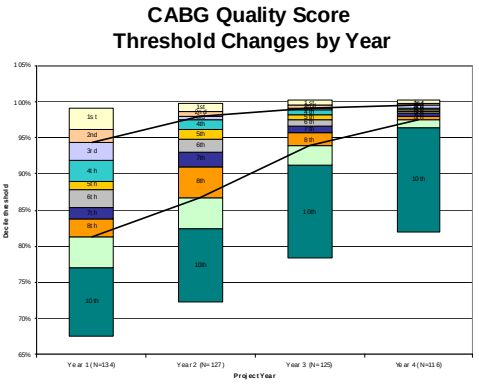
Notably, the range of variance among HQID participating hospitals is closing, as those hospitals in the lower deciles continue to improve their quality scores and close the gap between themselves and the demonstration's top performers.

In addition to the rising thresholds, the data shows a compression of the ranges, or a reduction in variation, across project participants. All hospitals, even the low performers, are making strides in quality improvement.

- **Quality improvement across all hospitals**
- **Variation in hospital performance decreased**







- In heart attack, the variance between the highest and lowest score was 40.68 percent in year one and has declined to 18.38 percent in year four[1].
- In heart failure, the variance between the highest and lowest score was 70.97 percent in year one and has declined to 41.24 percent in year four.
- In pneumonia, the variance between the highest and lowest score was 37.64 percent in year one and has declined to 24.85 percent in year four.
- In heart bypass, the variance between the highest and lowest score was 31.6 percent in year one and has declined to 18.29 percent in year four.
- In hip and knee replacement, the variance between the highest and lowest score was 27.97 percent in year one and has declined to 23.99 percent in year four.

HQID Rewards and Penalties

Among the 242 providers in the third year, 206 incentive payments were distributed across 112 providers. In contrast, of the 1,028 potential areas where participants could receive a negative payment adjustment by falling below the payment adjustment threshold, only 11 total penalties occurred across nine total providers, or fewer than one percent of participants. This is a significant improvement considering that at the end of year one, by definition, 20 percent of participants were below the threshold.

The majority of penalties (six of the 11) were in the Hip and Knee Replacement clinical area. Poor performance penalties in this clinical area was predominately due to one clinical measure - prophylactic antibiotic discontinued within 24 hours. Other payment adjustments were in AMI/Heart Attack (3), Heart Failure (1), and CABG (1). In some instances, issues beyond hospital control had a detrimental affect on their efforts/results; for example, a merger/buy out/bankruptcy/administrative change or issues with physician compliance to measures.

Participants in HQID have continuously improved throughout the project, setting the bar higher and higher. For year four, hospital performance was evaluated against the 9th and 10th deciles set during the second year of the project. In some clinical areas there were little variation in high and low performers, and penalty thresholds were preliminarily set at nearly 90 percent in these clinical areas.

To avoid penalizing hospitals that are performing well, the penalty threshold to identify poor performance was capped at 85 percent, which was a natural baseline from the start of the demonstration. Capping the thresholds for clinical areas where performance is already high allows the bar to be set higher for other clinical areas with more opportunity for improvement. Only nine penalties, less than one percent of the possible penalties (978), are projected for year four.

A natural policy concern is whether HQID type incentive payments and performance recognitions disproportionately accrue to hospitals of specific types or those that serve specific

[1] Year 4 data reported is preliminary and will be finalized in spring 2009.

segments of the patient population.[2] From North Shore – LIJ's perspective, regardless of the type of hospital, the patient population served and the economic or cultural diversity of the community, we believe all can achieve quality improvements.

Within our system, we established quality standards that are a priority for all of our hospitals. In the case of the HQID project, the expectation of what the standard would be for all hospitals was established by a diverse, multi-disciplinary group of clinical and administrative leaders.

Individual hospitals determined how those expectations were to be accomplished. Each hospital utilized local solutions and processes to accomplish its goals.

Data and implementation plans and challenges are regularly shared among all hospital leaders to create the systematic learning and support that has resulted in our sustained and continuous improvements.

HQID: A Powerful Stimulus to Accelerate Performance

HQID participating hospitals have shown performance gains that have outpaced those of hospitals involved in other national performance initiatives such as Hospital Compare, a consumer-oriented Web site that provides information reported by hospitals to CMS on how well they provide recommended care to their patients. In fact, analyses by Premier using the Hospital Compare calendar year 2007 dataset showed that demonstration participants scored on average 7.5 percent higher than non-participants (93.38 percent compared to 85.86 percent) when looking at a composite of 19 measures shared in common between HQID and Hospital Compare.

Although Hospital Compare data was not available at the inception of the HQID project, a comparison of participants to the Joint Commission national comparative data on a set of 14 measures shared in common with HQID showed that HQID participants did not start the project outperforming other hospitals (77.88 percent compared to a national average of 78.96 percent).

A *New England Journal of Medicine* publication by Lindenauer et al.[3] confirms these results. This study compared two years of data on a set of 10 quality measures used in heart attack, heart failure and pneumonia for HQID participants and a control group obtained by matching hospitals on hospital characteristics of bed size, rural/urban, teach/non-teaching, geographic region and for-profit/not-for-profit status. The study determined that HQID hospitals achieved quality scores 2.6 to 4.1 percentage points above the control hospitals that were participating in public reporting due solely to the impact of quality improvement incentives. These differentials appear more impressive when the limited opportunity for improved performance is taken into account.

A separate study[4] published in *Health Affairs* last year about hospital performance and evidence-based quality measures and mortality rates found that hospitals in the top quartile of

[2]See for example Werner RM et al. (May 2008), "Comparison of Change in Quality of Care between Safety-Net and Non-Safety-Net Hospitals," *Journal of the American Medical Association*, **299**(18):2180-2187.

[3]Lindenauer PK, Remus D, Roman S et al. Public reporting and pay for performance in hospital quality improvement. *N Engl J Med* 2007 February 1;356(5):486-96.

[4]A. K. Jha, J. Orav, Z. H. Li, A. M. Epstein, The Inverse Relationship Between Mortality Rates and Performance in the Hospital Quality Alliance Measures, *Health Affairs* July/August 2007 26(4):1104–10

quality performance, compared with hospitals in the bottom quartile on quality performance, had 11 percent lower mortality for acute myocardial infarction, seven percent lower mortality for congestive heart failure and 15 percent lower mortality for patients with pneumonia.

HQID Hospitals Improve Care Beyond Core Measures, Across All Payers

Some have expressed concern that providing incentives based on a subset of the many aspects of patient care will cause hospitals to "teach to the test" or perform well on the processes that are measured while giving cursory attention to other aspects of care.

However, in a recent analysis[5] that evaluated the effectiveness of the HQID project by comparing performance to a group of hospitals involved in another program devoted to heart attack quality improvement, HQID hospitals performed noticeably better on the non-HQID measures (13.6 percent compared to 8.1 percent improvement in the composite score) and also achieved greater levels of improvement on all the HQID measures than the control group hospitals.

This would indicate that hospitals that are incentivized to do so adopt a more serious and comprehensive approach to performance improvement that extends beyond the areas measured in the project to overall patient care.

Although HQID is a demonstration through the Medicare program, analyses using Premier's Perspective database for the October 2003 through June 2006 timeframe indicated that improved and reliable delivery of evidence-based processes is associated with better outcomes across multiple payor groups. This would indicate that a Medicare-sponsored demonstration can impact care throughout the facility.

North Shore-LIJ's Quality Improvement Journey

As a hospital system, North Shore-LIJ decided to participate in the HQID for a variety of reasons. In addition to a long-standing mission to provide high-quality care, we believed the HQID measures would help us demonstrate our commitment to patient safety, evidence-based medicine across the continuum of care, transparency and ongoing improvements. In addition, it gave us an opportunity to work on physician-hospital alignment to improve care. Nine of our hospitals participated in the demonstration.

North Shore-LIJ leadership prioritized the expectation of delivering evidence-based care at each institution across the vast healthcare system. The hospitals were charged at the local level to develop an integrated approach to standardize care for high-volume, high-risk and problem-prone conditions based on process and outcome measures. Established benchmarks were created and communicated horizontally and vertically, from the bedside caregivers across the organization to the Board of Trustees. Monthly feedback of this data is communicated throughout the organization and leadership is held accountable.

Health system interdisciplinary taskforces were created to share best practices and lessons learned. In addition, disease-specific toolboxes were created containing various forms,

[5]Glickman SW, Ou FS, DeLong ER et al. Pay for performance, quality of care, and outcomes in acute myocardial infarction. *JAMA* 2007 June 6;297(21):2373-80.

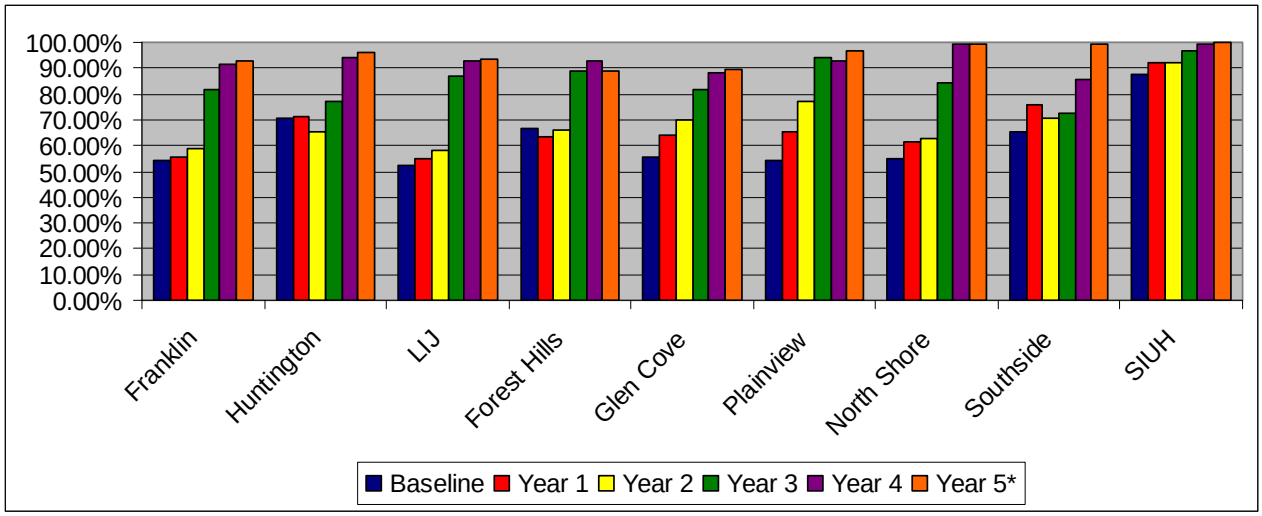
documents and teaching materials, and were disseminated to each site to further facilitate implementation of best practices. North Shore-LIJ utilized its corporate university, called the Center for Learning and Innovation, to further enhance education, knowledge transfer and team building for employees.

By integrating and standardizing care processes, North Shore – LIJ achieved dramatic improvement in all five clinical areas. For North Shore - LIJ hospitals participating in the HQID project, the average Composite Quality Score (CQS), an aggregate of all quality measures within each clinical area, improved by 12.48 percent over the project's first three years.

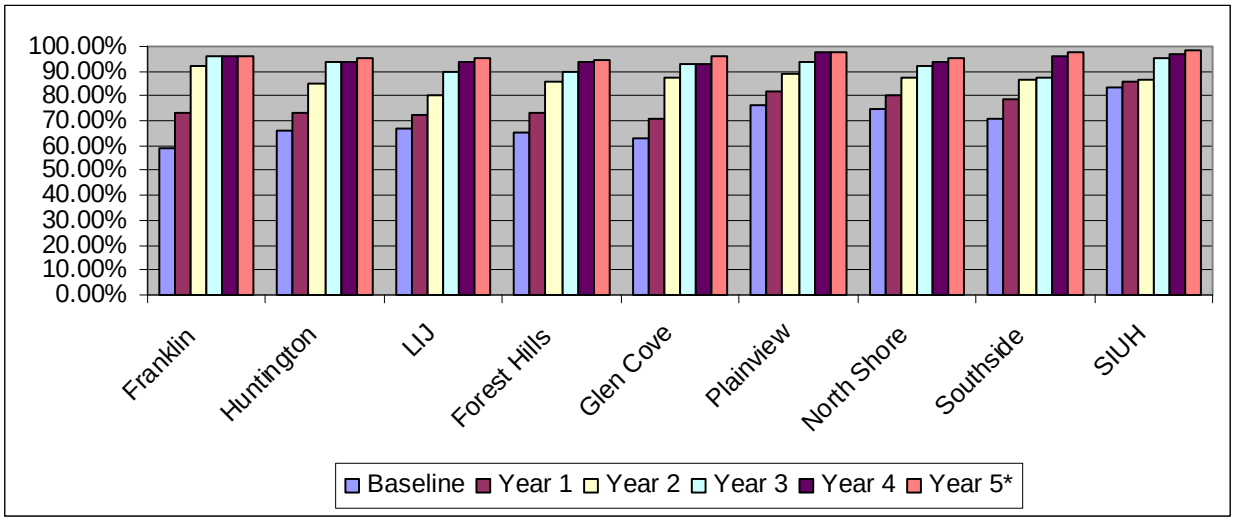
- From 91.18 percent to 96.75 percent for patients with AMI (heart attack);
- From 67.11 percent to 92.91 percent for patients with heart failure (HF);
- From 76.71 percent to 94.89 percent for patients with pneumonia (PN);
- From 92.52 percent to 98.87 percent for patients with coronary artery bypass graft (CABG);
- From 89.88 percent to 96.37 percent for patients with hip and knee (HK) replacement.

The quality improvement for North Shore-LIJ hospitals in the areas of heart failure and pneumonia are shown below.

Heart failure



Pneumonia



During the first three years of the project, North Shore-LIJ hospitals received incentive payments totaling $1,134,120 for the quality achievement of five of nine providers. While we are improving quality to provide the very best outcomes for patients and not for the money, having an incentive as a reward in the HQID project for achieving outstanding results is a welcome component.

Preliminary findings for year four indicate that eight of nine North Shore-LIJ hospitals have reached the attainment threshold in all clinical conditions. In addition, seven hospitals were among the top-improving hospitals in at least one clinical area (for a total of 12 awards), and six hospitals were among the top performing hospitals in at least one clinical area (for a total of 11 awards).

Our success is based on a number of factors. At North Shore-LIJ, performance measures are reported internally to the Board of Trustees' Governance Committee, a system-level Performance Improvement Coordinating Group, the health system's Medical Executive Committee, senior leadership, local leadership and all levels of staff. Data is also posted on the health system's intranet. To search for opportunities for improvement, we continuously monitor performance by comparing data among our own facilities and benchmarking it against other healthcare organizations.

As a health system, we have the opportunity to learn from one another and have developed a collaborative quality management communication structure. Senior leadership from each of our facilities (executive directors, medical directors, nurse executives, quality management leadership and front-line staff) meet on a monthly basis to review performance data, share best practices and analyze adverse events. In an affirmation of our commitment to patient trust, we posted our performance reports on North Shore-LIJ's public Web site (www.northshorelij.com/quality), including:

- reports on our hospitals' infection rates (North Shore-LIJ was the first nonprofit hospital in New York State to publicly post this data);
- patient satisfaction scores;
- the CMS core measures results;
- stroke compliance measures; and
- other important quality and patient safety initiatives that we have invested in, such as pressure ulcer prevalence and rapid response team activations.

Data are reported each month and are generally aggregated on a quarterly or rolling average. Realistic goals and targets are established by senior leadership based on current performance, national benchmarks and in consultation with experts in the field, such as Press Ganey Associates, which North Shore-LIJ has been using for nearly 10 years to measure patient satisfaction, long before it became a federal requirement. The scorecard is updated and disseminated on the health system's intranet on a monthly basis to North Shore-LIJ trustees as well as senior leadership, executive directors, physician leaders, nurse executives and managers who have been granted access at each facility. At each site, strategic performance metrics are reviewed in leadership, management and departmental level meetings.

The scorecard is a management tool used by senior leadership to gauge their performance toward pre-determined goals. Hospital executive directors are accountable for performance on these measures and discuss their progress toward goals. Action plans are required by hospital chief operating officers if goals are not on target or are trending in a negative direction. Performance on those measures is linked to an incentive-based compensation program for the executive directors and their administrative teams established in 2008. Performance on the scorecard will be linked to incentive compensation for department heads later this year (2009).

In addition, to promote alignment of priorities and drive improvement, the nursing and ancillary departments throughout the health system have each developed their own scorecard focused on the priority areas of patient experience, quality and operational/financial performance. These departmental-level dashboards are monitored by site leadership and management. Performance on the HQID metrics are discussed at meetings of staff and collaborative care councils that have been established at our hospitals to improve performance.

We have also developed physician and practice-specific performance reports that aggregate performance metrics on the core measures, patient satisfaction and efficiency measures to further reinforce the alignment between the hospital and physicians.

The North Shore-LIJ Health System has embarked on a comprehensive strategy to proactively develop systems designed to achieve predictable, optimal outcomes that consistently meet or exceed expectations. This commitment has produced a blueprint for change within the health system that guides all of our patient safety and quality work, including that conducted as part of HQID, and serves as a dynamic gauge for multitude of external indicators and measures that are injected into the delivery of care processes by various agencies.

Benefits of HQID to North Shore-LIJ

As part of our HQID participation, we have uncovered a range of positive benefits that have helped us focus on and deliver quality.

In each of our hospitals, HQID has been helpful in keeping us focused on specific clinical conditions and opportunities for improvement that were identified over the course of the project. We have used the program to create a standard of care based on medical evidence for specific conditions, using the incentives to initiate positive change.

We also found that HQID helped us to investigate and validate our documentation, standardize processes using order sets, standing orders and uniform discharge instructions, and implement new processes for concurrent monitoring of clinical conditions so that the patients' needs were met and documented during the hospital stay.

Over the long term, we have also learned that standardizing hospital processes brings about efficiencies in the delivery system. In fact, in an analysis released in 2008, Premier found that as hospital quality continued to improve, hospital costs declined among participants in the HQID project. According to the analysis of 1.1 million patient records, if all hospitals nationally were to achieve the three-year mortality improvements found among the project participants for pneumonia, heart bypass, heart failure, heart attack (acute myocardial infarction) and hip and knee replacement patient populations, they could reduce hospital costs by more than $4.5 billion annually. The 1.1 million patient records represented in this analysis encompass 8.5 percent of all patients nationally within the five noted clinical areas over the three-year timeline of this analysis.

The same Premier analysis also showed that, if all hospitals nationally were to achieve the HQID three-year mortality improvements across the project's five clinical areas, an estimated 70,000 lives per year could be saved.

Policy Recommendations and Lessons Learned From HQID

A program like HQID requires systemic changes that can be challenging for any hospital to implement. As charter members of HQID, we can share some of the lessons we have learned to help members of the Committee craft proposals that will be most effective in improving the overall quality of healthcare in America.

Quality reporting should be automated and based on medical records data. The current process for reporting of quality indicators is a dual process that relies heavily on manual clinical data abstraction of medical record review information and reconciliation of administrative data. This is both time consuming and costly to the organization. Moreover, because data is coming from medical records and billing information, this process can lead to errors and inaccuracies. Moving forward, we hope that many of these issues can be resolved as we work to implement more advanced health information technology (HIT) systems within our facilities, as supported through the American Reinvestment and Recovery Act. In doing so, our hope is to extract quality data directly from the electronic health record (EHR).

However, different EHR systems capture and organize data in unique and proprietary ways. To automate the process, the standard-format data captured in EHRs should be readily accessible to be transmitted to quality reporting systems. The government should develop the interoperability standards for the data needed for quality reporting and mandate that all EHR products provide a utility that can be certified to comply.

Mandated reporting programs should be based on open and fully transparent measures. There are many quality measures that exist or are being developed by private organizations. If these measures are used in federal programs, healthcare providers would have to purchase the proprietary software and data systems in order to track their progress and report to CMS. In other words, the adoption of these privately owned quality measures by CMS would create monopolistic suppliers of these measures. In the HQID project, all measures used to assess hospital performance were open and transparent, allowing the hospitals to replicate methodologies and efficiently report progress. This transparency must be preserved in any program used to incentive quality.

All measures should be evidence-based, accepted as best care by the medical expert community and strongly linked to better patient outcomes. Serious harm to the credibility of the program is done when measures are not medically accepted or have significant unintended consequences. To assist the process of measure development and refinement, as well as to provide hospitals with experience in using the measures, measures should be extensively tested among a broad group of hospitals before they are included in a quality incentives program.

Efforts should be taken to ensure that the measures used do not institutionalize existing care disparities. The measures used to determine rewards should be crafted with appropriate representation of our increasingly diverse population and should be relevant to all patient populations. Care should be taken to avoid measures that may create unintended consequences, such as decreasing access to care for the uninsured or vulnerable populations.

Implementation should be gradual. Because certain types of hospitals may take longer to adjust, implementation of payment accountability should be gradual to allow these hospitals time to adjust.

Hospital, physician and other providers' incentives should be aligned. To be effective, programs that reward improvement must align hospital, physician and other providers' incentives, encouraging all to work together toward the same goals of improving quality and patient safety, providing both effective and appropriate care and creating better health outcomes.

Quality improvement and quality attainment both should be rewarded. The purpose of incentive-based payment approaches should be very focused on *improving quality and patient safety and providing effective care*. An effective program should provide incentives to providers for both attainment and improvement to reward a broad group of providers for their efforts.

Financial incentives matter and are more powerful change agents than recognition alone. The persistence of the public recognition gap in the face of the payment gap attenuation suggests

that incentives matter, i.e. payment incentives can motivate hospital behavior when mere public recognition does not.

Key Issues for Health Reform

I would also like to address issues beyond the HQID project and discuss what we believe should be key drivers in health reform. First, patients should be at the center of our delivery system. At North Shore-LIJ, we do just that. From there, personal and team commitments, and departmental, hospital, organizational and board performance improvement committees oversee and steer progress, implementation and redesign to achieve sustainable progress. The fundamental goal, which traverses all components of this work, is to align all participants in the delivery of patient care.

To achieve alignment, the blueprint relies on key strategic imperatives:

1. **Reducing unnecessary variation and overuse.** This is achieved by adhering to evidence-based medicine principles and guidelines, standardizing processes and practices, and committing the organization to study, learn and apply the tools that result in the desired outcomes. Among the ways we have demonstrated the value of this approach was our success in reducing central line-related infections, resulting in a decrease of 60.31 percent from 2004 to 2008, which equates to a cost savings of $2,626,183. In addition, there was a decrease of 31.22 percent in surgical site infections from 2004 to 2008, resulting in cost savings of $53,886. Also, there was a lower mortality rate among stroke patients. Current work is focused on addressing sepsis and comprehensive heart failure in patients that are not candidates for transplantation.

2. **Improving Care Coordination and Patient Safety.** Healthcare is a team-based profession in a complex environment with many variables that affect the ultimate outcomes. We are striving to achieve a state of high reliability within our health system by developing a system-wide code of professionalism and a process to support it. We recognize that caregivers and families alike must know which physician is in charge of coordinating each patient's care. To that end, we have launched our "Who's In Charge" initiative to develop and pilot programs that will increase everyone's ability to coordinate care. We also are in the midst of deploying Team STEPPS (Strategies and Tactics to Enhance Performance and Patient Safety) throughout all of our 14 hospitals. We have established multidisciplinary Collaborative Care Councils on all units within all of our hospitals to promote local ownership, engagement and empowerment for addressing safety concerns without delay.

3. **Integrating the Continuum of Care.** North Shore-LIJ is delivering more care in the community so patients spend less time in the hospital. It is essential that we develop effective ways to fully integrate the transition of care from one level to another. North Shore-LIJ has an extensive home care network that conducts more than a half-million visits annually and has incorporated the use of telehealth technology, which allows patients to communicate with home care staff via a webcam and have their vital signs checked remotely. The health system has also developed relationships with nearly 20 outside sub-acute, long-term care (LTC) and assisted-living facilities throughout its service area – North Shore-LIJ owns and operates two LTC facilities. We are working

with caregivers, patients and their families on increasing awareness of medication reconciliation. Several pilot programs in this important imperative are currently underway and we are confident they will add value as they develop further. Payment reforms, such as bundled payments, may help further improve continuum of care coordination, but these concepts should be piloted to avoid unintended consequences.

4. **Increasing Stakeholder Trust**. Creating and developing trust in healthcare for all stakeholders is a primary imperative for North Shore-LIJ. We led the way toward strengthening public trust with our stakeholders by becoming the first nonprofit hospital in New York State to publicly report our quality and safety performance on our Web site. We firmly believe that increasing transparency of well-developed measures adds value to the healthcare system and helps to promote active engagement in improvement initiatives. However, building trust also requires the creation of a culture of safety and a "just culture" for dealing with adverse events. We have embraced best practices emanating from other high-reliability industries and have begun the transformational changes needed to instill a culture in which patient safety is the number-one priority. High-reliability organizations have a "preoccupation with failure," meaning that all near misses and adverse events, large or small, are studied to truly understand the factors that contributed to the error. More importantly, the learning focuses on what can be designed to improve the system and its processes. For cultural change to be successful, regulatory and legislative actions will be essential.

5. **Medical education at the student and resident levels must play a key role** in making the move to safe, quality care models sustainable over time and part of the culture of medicine and its leadership. We must train our students in the processes of medical quality, evidence-based medicine, patient safety, team care and sophisticated use of data. All young physicians should be able to assess their own care as to quality, safety and value and be able to use data as information for improvement. Students must be prepared for the future world of transparency, public reporting and proving quality.

   We must also change the culture of our teaching hospitals to be the role-models of value-driven care. Trainees have a permanent imprint of how care should be delivered from what they observe during training. This imprint lasts forever and significantly affects the value metrics of care they deliver through their entire career. We need to expose our students to teachers who are themselves high-value practitioners who ask, "Why did you do this?" or "How will this help your patients' outcome?" as opposed to the more common model of "Why didn't you order X, Y, or Z test or treatment looking for unlikely medical "fascinomas?"

Conclusion

Based on our successes in the HQID project, we believe that quality incentives can and do improve patient outcomes across a wide variety of measures and payers. It is our belief that projects like HQID represent a model for implementing a range of health reforms. As we learned through HQID, if tested and piloted first to ensure appropriate incentives are in place and provider interests are aligned, we can achieve remarkable advances that improve safety, quality and affordability of care.

Collaboration and the sharing of ways to implement best medical practices is the key to quality success. We support both public and private organizations that conduct such work and encourage Congress to look to them for insights into improving quality of patient care.

APPENDIX

Widely Accepted Clinical Indicators Used in HQID

Measures added for Years 4&5 = underlined
Outcomes measures (7) = Bold italicized text
Composite score an average of all measures for each condition

Acute myocardial infarction (AMI)

1. Aspirin at arrival
2. Aspirin prescribed at discharge
3. ACEI/ARB for LVSD
4. Smoking cessation advice/counseling
5. Beta blocker prescribed at discharge
6. Beta blocker at arrival
7. Thrombolytic received within 30 minutes of hospital arrival
8. PCI received within 90 minutes of hospital arrival
9. ***Inpatient mortality rate***

Coronary artery bypass graft (CABG)

1. Aspirin prescribed at discharge
2. CABG using internal mammary artery (Test)
3. Prophylactic antibiotic received within one hour prior to surgical incision
4. Prophylactic antibiotic selection for surgical patients
5. Prophylactic antibiotics discontinued within 24/48 hours after surgery end
6. Patients with controlled 6 A.M. Postoperative Blood Glucose
7. ***Inpatient mortality rate***
8. ***Post operative hemorrhage or hematoma***
9. ***Post operative physiologic and metabolic derangement***

Hip and knee replacement

1. Prophylactic antibiotic received within one hour prior to surgical incision
2. Prophylactic antibiotic selection for surgical patients
3. Prophylactic antibiotics discontinued within 24 hours after surgery end time
4. ***Post operative hemorrhage or hematoma***
5. ***Post operative physiologic and metabolic derangement***
6. ***Readmission within 30 days to any acute care facility***
7. Surgery patients with recommended VTE prophylaxis ordered
8. Surgery patients who received appropriate VTE prophylaxis within 24 hours prior to surgery up to 24 hours after surgery end time

Heart failure (HF)

1. Left Ventricular Systolic (LVS) assessment
2. Detailed discharge instructions
3. ACEI or ARB for LVSD
4. Smoking cessation advice/counseling

Pneumonia (PN)

1. Percentage of patients who received an oxygenation assessment within 24 hours prior to or after hospital arrival
2. Initial antibiotic selection for Community Acquired Pneumonia
3. Blood culture collected prior to first antibiotic administration
4. Influenza screening/vaccination
5. Pneumococcal screening/vaccination
6. Antibiotic timing, percentage of pneumonia patients who received first dose of antibiotics within four/six hours after hospital arrival
7. Smoking cessation advice/counseling

Surgical Care Improvement Project (SCIP) (year 5 & 6)

1. Prophylactic antibiotic received within 1 hour prior to surgical incision
2. Prophylactic antibiotic selection for surgical patients
3. Prophylactic antibiotics discontinued within 24 hours after surgery end
4. Patients with controlled 6 A.M. Postoperative Blood Glucose
5. Surgical Patients with Hair Removal
6. Colorectal Surgery Patients with Normothermia
7. Surgery patients with recommended VTE prophylaxis ordered
8. Surgery patients who received appropriate VTE prophylaxis within 24 hours prior to surgery up to 24 hours after surgery end time
9. Surgery patients on Beta-Blocker Therapy who Receive Beta-Blocker during Perioperative Period

Measures Now Being Tested in HQID At CMS' Request

Outcomes measures (32) = Bold italicized text

Acute myocardial infarction (AMI)

- LDL Cholesterol Assessment
- Lipid lowering therapy at discharge
- ***HQID 30-day mortality rate (CMS admin. data)***
- ***Same hospital readmission within 30 days (all cause)***
- ***AHRQ patient safety composite***
- Appropriate care measure
- ***CMS 30-Day readmission rate (CMS admin. data)***
- ***CareScience complication measure***
- ***Risk-adjusted average length of inpatient hospital stay (yr 6)***

Coronary artery bypass graft (CABG)

- CABG using internal mammary artery (IMA)
- Isolated CABG patients on beta-blocker therapy who receive beta-blocker during perioperative period (yrs 4,5)
- ***Same hospital readmission within 30 days (all cause)***
- ***AHRQ patient safety composite***
- Appropriate care measure
- ***AHRQ inpatient quality indicators post-procedural mortality rate***
- ***CareScience complication measure (yrs 4,5)***
- ***Risk-adjusted average length of inpatient hospital stay (yr 6)***

Hip and knee replacement

- Hip/knee patients on beta-blocker therapy who receive beta-blocker during perioperative period
- ***AHRQ patient safety composite***
- Appropriate care measure
- ***AHRQ inpatient quality indicators post-procedural mortality rate***
- ***CareScience complication measure (yrs 5,6)***
- ***Risk-adjusted average length of inpatient hospital stay (yr 6)***

Heart failure (HF)

- ***Same hospital readmission within 30 days (all cause)***
- ***AHRQ patient safety composite***
- Appropriate care measure
- ***HQID 30-day mortality rate (CMS admin. data)***
- ***AHRQ inpatient quality indicators in-hospital mortality rate***
- ***CMS 30-Day readmission rate (CMS admin. data)***
- ***CareScience complication measure (yrs 5,6)***
- ***Risk-adjusted average length of inpatient hospital stay (yr 6)***

Pneumonia (PN)

- ***Same hospital readmission within 30 days (all cause)***
- ***AHRQ patient safety composite***
- Appropriate care measure
- ***HQID 30-day mortality rate (CMS admin. data)***
- ***AHRQ inpatient quality indicators in-hospital mortality rate***
- ***CMS 30-Day readmission rate (CMS admin. data)***
- ***CareScience complication measure (yrs 5,6)***
- ***Risk-adjusted average length of inpatient hospital stay (yr 6)***

Surgical Care Improvement Project (SCIP)

- Cardiac surgery patients with controlled 6 a.m. postoperative blood glucose
- Surgical patients with hair removal
- Colorectal surgery patients with normothermia
- Surgery patients on beta-blocker therapy who receive beta-blocker during perioperative period
- ***CareScience complication measure (yrs 5,6)***
- ***Risk-adjusted average length of inpatient hospital stay (yr 6)***

Ischemic Stroke (Yr 6 add)

- Deep vein thrombosis (DVT) prophylaxis
- Discharges on antithrombotic therapy
- Patients with atrial fibrillation receiving anticoagulation therapy
- Thrombolytic therapy administered
- Antithrombolytic therapy by end of hospital day two
- Dischargedon cholesterol reducing medication
- Dysphagia screening
- Smoking cessation advice/counseling
- ***Risk-adjusted average length of inpatient hospital stay***